

USSR

UDC 632.95

MEL'NIKOV, N. N., SHVETSOVA-SHILOVSKAYA, K. D., ~~SAPOZHNIKOV, YU. N., and~~
CHERNYAKOV, I. YE.

"Dicresyl Compound"

V sb. Khim sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 55-60 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N399)

Translation: A mixture of meta- and para-cresyl esters of N-methylcarbanic acid, called dicresyl, is recommended for use against ticks on animals and birds. The mixture in a ratio of 1:1 is no less effective than pure meta-cresyl ester. Dicresyl can be synthesized by reacting a mixture of cresols with phosgene in the presence of acid-binding agents with subsequent methylamine treatment of the resultant chloroformate ester; by amidizing absolute cresyl carbonate, and by reacting a mixture of cresols with MeNCO .
P. V. Popov

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UDC 632.95

MEL'NIKOV, N. N., SHVETSOVA-SHILOVSKAYA, K. D., SAPOZHNIKOV, YU. N., PUSHINA, M. YA., and TITOVA, YE. B.

"Trichlorometaphos-3 Compound"

V sb. Khim sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 28-32 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N396)

Translation: Trichlorometaphos-3 of formula $(\text{MeO}) (\text{EtO}) \text{P}(\text{S}) \text{CC}_6\text{H}_2\text{Cl}_3-2,4,5$ (I) with a boiling point of $127^\circ/0.15$, $d_4^{20} 1.4345$, $n_D^{20} 1.5520$ is synthesized by reacting $(\text{MeO}) (\text{EtO}) \text{P}(\text{S}) \text{Cl}$ with 2,4,5- $\text{Cl}_3\text{C}_6\text{H}_2\text{OMe}$. Compound I is used against the larvae of botflies, mites and flies. In order to purify the 80% commercial product, impurities are continuously steam-distilled utilizing a glass packing column. The purified product is dried at $90-100^\circ\text{C}$ and a pressure of 20-30 mm for 1 hour. A diagram is presented of the column for purifying I.

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USSR

UDC: 539.4.624

SAPOZHNIKOV, A. I.

"Consideration of Unevenness of Seismic Oscillation Field of Base Over Length of a Stockade"

Seysmostoykost' Gidrotekhn. i Portov. Sooruzh. Primor'ya. Ch. 1 [Seismic Stability of Hydraulic Engineering and Port Structures, Part 1 -- Collection of Works], Vladivostok, 1972, pp 46-50 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12V926, by A. I. Koppel')

Translation: The hypothesis of absolute rigidity of the grillage plate of a pile stockade in its plane is criticized. Criteria are sought for which the plate can be considered nondeformable. The calculation plan used is a plate with three types of bends -- displacements, rotation and elastic deformation. It is assumed that the deformations of a plate of monotonic design may be caused by unevenness of rigidity of the pile field along its length or unevenness of the seismic field along the length of the stockade. The form factors and natural frequencies of the stockade are found for parallel displacement, twisting and shear-bending oscillations. An example is presented of calculation of the technological area of an oil pier at Nakhodka. The results produced indicate that it is expedient to consider the first two forms of

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Sapozhnikov, A. I., Seysmostoykost' Gidrotekhn. i Portov. Sooruzh. Primor'ya
Ch. 1, Vladivostok, 1972, pp 46-50.

oscillations, leading to an increase in loads on the end frames of 40% in
comparison with similar results produced using the flat calculation plan.

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1/2 032
UNCLASSIFIED
TITLE--PROBLEMS CONCERNED WITH ARTICULATION -U- PROCESSING DATE--16OCT70
AUTHOR--(02)-NAPADOV, M.A., SAPOZHNIKOV, A.L.
COUNTRY OF INFO--USSR
SOURCE--STOMATOLOGIYA, 1970, VOL 49, NR 3, PP 72-74
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DENTISTRY, DENTURE, PROSTHESIS, JAW
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/0073 STEP NO--UR/0511/70/049/003/0072/0074
CIRC ACCESSION NO--AP0120773
UNCLASSIFIED

2/2 032
CIRC ACCESSION NO--AP0120773
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT. SUMMARY. THE AUTHORS ARE OF THE
OPINION THAT DENTAL ARCHES IN DENTURES FOR TOOTHLESS JAWS SHOULD BE
DESIGNED IN ACCORDANCE WITH ANATOMICAL AND FUNCTIONAL FEATURES SPECIFIC
TO THE CRANIAL STRUCTURE. FUNCTIONAL DISORDER OF MASTICATION ASSOCIATED
WITH THE LOSS OF TEETH, LEADS TO ALTERATIONS OF ALL ELEMENTS OF THE
MAXILLODENTAL SYSTEM AND BONES OF THE FACIAL SKULL. AS THE RESULT OF
THIS THERE OCCURS ASYMMETRY OF THE BONES WHICH SHOULD BE TAKEN INTO
CONSIDERATION WHEN PREPARING ARTIFICIAL TEETH. ON THE BASIS OF
MEASUREMENTS OF THE INCLINATION ANGLES OF INTERALVEOLAR LINES IN RESPECT
TO THE SAGITTAL PLANE IN THE MOLAR REGION ON BOTH SIDES IN 200 PATIENTS
WITH TOOTHLESS JAWS THE AUTHORS DESIGNED A DISMANTLING PLATE FOR THE
FIXATION OF ARTIFICIAL TEETH WITH A SPHERICAL SURFACE HAVING A RADIUS OF
9 CM. THE AUTHORS CONSIDER THE SPHERICAL THEORY OF ARTICULATION AND
CONSTRUCTION OF DENTAL ARCHES AS THE MOST RATIONAL. FACILITY:
KAFEDRA ORTOPEIDICHESKOY STOMATOLOGII KHAR'KOVSKOGO INSTITUTA
USOVERSHENSTVOVANIYA VRACHEY.

UNCLASSIFIED

USSR

SAPOZHNIKOV, A. S.

"Problems of Placement of Information Files in Automated Control Systems"

Avtomatiz. Upr. Prom. Predyariyatiyami [Automation of Control of Industrial Enterprises -- Collection of Works], Kiev, Tekhnika Press, 1972, pp 54-63
(Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V671, by the author).

Translation: Possible versions of organization of the information files of an automated control system using multi-machine computer complexes are studied. The problem of decentralized placement of files of initial data at information processing points with minimal losses during data transmission is formulated and solved. The effectiveness of the algorithm suggested is demonstrated with an example.

USSR

KRUPNIKOV, K. K., KUROPATENKO, V. F., SAPOZHNIKOV, A. T., SIMANOV, B. N., and SIMONENKO, V. A.

"Calculation of Explosions in Media With Polymorphic Phase Transitions"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 2, 1972, pp 300-301

Abstract: The problem of describing the polymorphic phase transitions which occur during strong explosions in dense media can be completely solved in the simplest approximation of thermodynamic equilibrium. The authors limit themselves to the consideration of a strong explosion in a medium having only two modifications. The equation of state of each phase is taken in the form

$$P = P_x(\rho) + P_T, \quad E = E_x(\rho) + E_T,$$

$$P_x = \frac{\rho_0 c_0^2}{n} (\delta^n - 1),$$

$$P_T = \Gamma c_V \rho T, \quad (1)$$

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USSR

KRUPNIKOV, K. K., et al., Doklady Akademii Nauk SSSR, Vol 202, No 2, 1972, pp 300-301

$$E_x = \frac{c_0^2}{n} \left[\frac{\delta^{n-1} - n}{n-1} + \frac{1}{\delta} \right] + E_0,$$

$$E_T = c_V T,$$

where $\delta = \rho/\rho_0$, $c_V = \text{const}$, $E_0 = \text{const}$, $\Gamma = \text{const}$. The constants entering into the equation of state are obtained either from theoretical models or from experiments. The boundaries of the phase stability regions are determined from the equality of chemical potentials. The pressure and internal energy in each phase in the continuous flow regions are found from the system of equations

$$dE + P dV = 0,$$

$$P = P_s(\rho) + \Gamma \rho (E - E_s).$$

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KRUPNIKOV, K. K., et al., Doklady Akademii Nauk SSSR, Vol 202, No 2, 1972, pp 300-301

which after V integration along the isotherm, which is also an isobar here, takes the form

$$E - E_0 = [T dP(T) / dT - P(T)] (V - V_0).$$

On the boundaries of the phase mixture region isentropes and shock adiabats experience a sharp bend, which in a number of cases results in the appearance of rarefaction shock waves and the bifurcation of compression shock waves. All these peculiarities were considered in the RAND /Calculation of Adiabatic Nonstationary Motions/ program for the computer-aided calculation of an explosion in a medium resembling quartz with the transition to stishovite:

$$\rho_{01} / \rho_{02} = 0,605, \quad c_{v1} / c_{v2} = 0,443, \quad c_{v1} / c_{v2} = 1, \\ n_1 = 4, \quad n_2 = 2,7, \quad \Gamma_1 = \Gamma_2 = 0,55.$$

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KRUPNIKOV, K. K., et al., Doklady Akademii Nauk SSSR, Vol 202, No 2, 1972, pp 300-301

Both phases were considered liquid (without shear stresses), and in the center was a gas bubble with high pressure, the expansion of which simulated a point explosion.

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USSR

UDC: 681.3.06:51

BARANOV, S. I. and SAPOZHNIKOV, E. A.

"The Problem of Minimizing the Number of Conditional Vertices in Graph-System Algorithms"

Sb. nauch. tr. Chelyabinsk. politekhn. in-ta (Collection of Scientific Works of the Chelyabinsk Polytechnical Institute) No 138, 1973, pp 133-140 (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1973, Abstract No 12B73)

Translation: There is a well-known algorithm for minimizing the number of conditional vertices in algorithm graph-systems (AGS). This algorithm, in the first place, leads to a minimum of conditional vertices only in the class of graph systems with no repeating conditional vertices on the path from one operator vertex to another; in the second, it is inapplicable to AGS with inverse vertices.

An algorithm free from these defects is proposed. The proposed algorithm results in a graph which is minimum in a class of graphs permitting some conditional vertices with the same condition in a single path and with inverse vertices. This, however, does not involve a minimum condition in the class

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USSR

BARANOV, S. I. and SAPOZHNIKOV, B. A., Sb. Nauch. tr. Chelyabinsk, politekhn.
in-ta, No 138, 1973, pp 133-140

of all equivalent AGS. The machine realization of the proposed algorithm
requires a much greater memory volume and rapid operation of the electronic
computer than realization of the well-known algorithm. Three illustrations,
bibliography of two. N. V.

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USSR

UDC: 550.837

KAMENSKIY, V. P., SAPOZHNIKOV, B. G., All-Union Scientific Research Institute of Exploratory Geophysics

"A Direct-Current Method of Geoelectric Prospecting"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329495, Division G, filed 16 Oct 70, published 9 Feb 72, p 183

Translation: This Author's Certificate introduces a direct-current method of geoelectric prospecting by measuring the difference in potentials of an electric field with subsequent elimination of the interference field. As a distinguishing feature of the patent, in order to automate elimination of interference, simplify equipment and process the recording, the potential difference is measured at three times separated by intervals of no more than one second. The first two measurements are made before the current is fed into the ground, and the third is made after introducing the current into the ground. The sought potential difference is determined from the measured values.

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UNCLASSIFIED
PROCESSING DATE--30OCT70
TITLE--SPECTRAL PROPERTIES AND THE STATE OF PHOTOSYNTHETIC PIGMENTS IN A
SYNTHETIC WATER SOLUBLE PIGMENT PROTEIN LIPID COMPLEX -U-
AUTHOR--(03)-GILLER, YU.YE., KRASICHKOVA, G.V., SAPOZHNIKOV, D.I.
COUNTRY OF INFO--USSR
SOURCE--BIOFIZIKA 1970, 15(1), 38-46
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PROTEIN, LIPID, AQUEOUS SOLUTION, SPECTRAL DISTRIBUTION,
FLUORESCENCE, BIOLOGIC PIGMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0630
CIRC ACCESSION NO--AP0117856
STEP NO--UR/0217/70/015/001/0038/0046
UNCLASSIFIED

2/2 017

CIRC ACCESSION NO--AP0117856

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WATER SOL. PIGMENT PROTEIN LIPID COMPLEXES (I) WERE PREPD. BY MIXING AT 2DEGREES 5 ML OF CENTRIFUGED (5 MIN AT 5000 RPM) MILK WITH 5 ML OF 0.009-1.1PERCENT CHLOROPHYLL A (II), CHLOROPHYLL B, OR CAROTENE SOLN. IN ACETONE, AND DILG. THE MIXT. WITH 10 ML OF PHOSPHATE BUFFER AT PH 8.04. I WERE PPTD. WITH SATD. (INH SUB4). SUB2 SO SUB4 SOLN., AND WERE ISOLATED BY CENTRIFUGING. THE PPTS. WERE WASHED WITH PETROLEUM ETHER AND WERE DISSOLVED IN 10 ML OF A MIXT. OF GLYCEROL AND BUFFER (1:1). THE MOLAR EXTINCTION COEFFS. OF THE PIGMENTS DECREASED WITH INCREASING CONTENTS OF THE PIGMENTS IN I AND WITH INCREASING STABILITY OF I. THE RELATIVE FLUORESCENCE YIELD OF II DECREASED WITH INCREASING CONTENT OF II IN I AT ROOM TEMP., AND RAPIDLY INCREASED (IN THE 725-735 MMU REGION) WITH DECREASING TEMP. THIS SHOWS THAT II IS PRESENT IN I IN THE FORM OF AGGREGATES. INST. PLANT PHYSIOL. BIOPHYS., DUSHANBE, USSR. FACILITY:

UNCLASSIFIED

Acc. Nr:

AP0052509

Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code:

4N0460

S

161316z Radiothermoluminescence of polyethylene films under stress. Nikol'skii, V. G.; Sapozhnikov, D. N.; Tochin, V. A. (Inst. Khim. Fiz., Moscow, USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(1), 19-22 (Russ). High-pressure polyethylene (I) films were irradiated with γ -rays at 77°K and heated $\leq 235^\circ\text{K}$. The intensity (I) of radiothermoluminescence was detd. of unstretched I and of I elongated under loads \leq the load at yield point. The plots of I vs. temp. had max. at 152, 181, and 232°K. Under stress, there is a very strong max. in the 200-235°K range, the position of which depends on the applied stress. The phenomenon is discussed in terms of the mol. mobility of I. CPJR

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REEL/FRAME
19821150

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Power

USSR

SAPOZHNIKOV, F. V., TURCHIN, N. Ya.

UDC 621.311.22

"The Development of Heat and Power Engineering Construction -- A Basic Trend in Creating an Energy Base for Electrification of the Country"

V sb. Energ. str-vo (Power Engineering Construction--Collection of Works), No 4 (106), Moscow, 1970, pp 26-30 (from RZh-Teploenergetika, No 9, Sep 70, Abstract No 9G4)

Translation: In recent years, a start has been made in the Soviet Union on construction of thermal electric power plants rated at 4,000 MW and more. Such power plants are to be built in regions of inexpensive coal deposits in Siberia (the Itat Region), Kazakhstan (the Ekibastuza Region), in Central Asia (the Syrdar'in State Regional Electric Power Plant), in the Donbass and on the Volga. Industrialization of the construction of thermal electric power plants is seen as an important achievement of the last decade. Two illustrations.

Therapy

USSR

UDC 616.988.75-085.37:576.858.095.383:362.121(571.12)

SAPOZHNIKOV, I. V., and KORNILOVA, N. YA., Tyumen' Medical Institute, and Medical and Sanitary Section, Tyumen' Engine Plant

"Treatment of Influenza Outpatients With Interferon"

Moscow, Voprosy Virusologii, No 1, 1973, pp 59-64

Abstract: During the 1971 influenza epidemic in Tyumen' human leucocyte interferon treatment was tested on outpatients. Serological tests on 121 patients indicated that over half had influenza antibodies, predominantly to A2 virus. Seventy-seven of these individuals were given two 10-minute interferon aerosol inhalation treatments 1 hour apart (total dose 3,000 units). Within the first 24-48 hours clinical symptoms of influenza disappeared, while intensity of some symptoms such as body temperature and the total illness time were lower than for control patients treated with conventional medicines. Hemagglutination-inhibition tests indicated no differences in specific antibody formation between test and control patients, showing that interferon treatment does not inhibit antibody formation.

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1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DISTRIBUTION LAWS FOR SUDDEN AND PROGRESSIVE FAILURES OF AUTOMATIC
ELEMENTS -U-
AUTHOR--(02)-SAPDZHNIKOV, R.A., PHILADELFINA, N.A.
COUNTRY OF INFO--USSR
SOURCE--LENINGRAD, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY.
PRIBOROSTROYENIYE, NO 2, 1970, PP 122-126
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--MECHANICAL FAILURE, AUTOMATIC ELECTRONIC SWITCH, PROBABILITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1696 STEP NO--UR/0146/70/000/002/0122/0126
CIRC ACCESSION NO--AT0123520
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0123520

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE AUTHORS STUDY DISTRIBUTION LAWS FOR CORRECTIVE WORK TIME PROBABILITY. THESE LAWS TAKE INTO CONSIDERATION SUDDEN AND PROGRESSIVE FAILURES OF AUTOMATIC ELEMENTS. ADVANTAGES OF THE GENERALIZED DISTRIBUTION PROPOSED BY THE AUTHORS ARE INDICATED.

FACILITY: LENINGRAD MECHANICAL INSTITUTE.

UNCLASSIFIED

USSR

GOL'DSHTIK, M. A., SAPOZHNIKOV, V. A., SHTERN, V. N., Novosibirsk

"Testing of the Malkus Hypothesis of Stability of Turbulent Flows"

Moscow, Mekhanika Zhidosti i Gaza, No 5, Sep-Oct 70, pp 172-176

Abstract: Numerical calculations indicate that even if the requirements of Malkus are fulfilled, they do not allow unambiguous determination of the experimental profile. The numerical analysis performed in this article leads to the following conclusions:

a) the critical Reynolds number for velocity profiles similar to the experimental profiles is over an order of magnitude higher than the Reynolds number for which these profiles are realized; b) the critical Reynolds number grows in proportion to the Reynolds number of the flow; c) among the neutral stable profiles, profiles can be found which correspond to arbitrarily high energy dissipation; d) neutral, stable profiles with fixed dissipation of energy can have arbitrary form outside the viscous sublayer and transient layer. Thus, the principal hypotheses of Malkus concerning boundary stability of an averaged turbulent flow to infinitely small perturbations are not confirmed. Stability of 1/2

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GOL'DSHTIK, M. A., et al, Mekhanika Zhidosti i Gaza, No 5, Sep-Oct 70, pp 172-176

averaged turbulent fields to finite perturbations is, however, an experimental fact. If at the initial moment in time, the energy distribution function is disturbed with respect to frequencies of turbulent pulsations, equilibrium distribution of energy and the profile of average velocity is restored rather rapidly in the flow. Consequently, the averaged turbulent fields do not have the property of neutral stability. The calculations in this article indicate deep stability of averaged velocity fields even without consideration of the stabilizing influence of Reynolds stresses, related to their direct interaction with the perturbations. While they contradict the hypotheses of Malkus, the results produced do not close the path to phenomenological description of turbulence on the basis of the stability properties. Indicating the deep stability of turbulent fields, they indirectly speak in favor of the principle of the maximal stability, developed in other works.

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1/2 027
UNCLASSIFIED
TITLE--LOCAL PROPERTIES OF THE PROBLEM OF HYDRODYNAMIC STABILITY --U-
PROCESSING DATE--20NDV70
AUTHOR--(03)-GOLDSTIK, M.A., SAPOZHNIKOV, V.A., SHTERN, V.N.
COUNTRY OF INFO--USSR
SOURCE--PMTF, ZHURNAL PRIKLADNOI MEKHANIKI I TEKHNIЧЕСKOI FIZIKI,
MAR.-APR. 1970, P. 56-61
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--REYNOLDS NUMBER, HYDRODYNAMIC PROPERTY, FLOW STABILITY,
PERTURBATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1399
STEP NO--UR/0207/70/000/000/0056/0061
CIRC ACCESSION NO--AP0133351
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133351

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. FORMULATION OF LOCALIZABILITY PROPERTIES FOR SHORT WAVE PERTURBATIONS IN THE PROBLEM OF HYDRODYNAMIC STABILITY. THESE PROPERTIES CAN BE USED TO STUDY NOT ONLY THE GLOBAL STABILITY OF A FLOW BUT ALSO THE STABILITY OF INDIVIDUAL PARTS OF THE FLOW, FOR EXAMPLE, THE FLOW CORE OR THE WALL ZONE. THE LOCALIZABILITY PROPERTIES ARE ILLUSTRATED IN THE CASE OF THE SMALL PERTURBATION SPECTRUM OF A PLANE POISEUILLE FLOW AND OF FLOWS OBTAINED BY DEFORMATION OF A SMALL SECTION OF THE POISEUILLE PARABOLA. IT IS SHOWN THAT THE OCCURRENCE OF POINTS OF INFLECTION IN SUCH DEFORMATION LEADS TO THE APPEARANCE OF GROWING PERTURBATIONS WITH A WAVELENGTH OF THE ORDER OF THE DEFORMATION ZONE. IT IS ALSO SHOWN THAT DISCONTINUITY POINTS IN THE VELOCITY PROFILE LEAD TO A LOSS OF STABILITY AT FAIRLY LARGE REYNOLDS NUMBERS.

UNCLASSIFIED

Transformation and Structure

USSR

UDC: 546.3-19 + 546.56 + 546.681

SKYARENKO, I.YA., PRISELKOV, YU.A., ZIMAKOV, I.YE., MATERN, G.A., SAPOZHNIKOV, YU.A.,
TSEPLYAYEVA, A.V., and SPITSYN, V.I., Institute of Physical Chemistry, Moscow
Academy of Sciences USSR, and Moscow State University imeni M. V. Lomonosov,
Moscow Ministry of Higher and Secondary Specialized Education USSR

"Evaporation of the Copper-Gallium Alloy in the Field of Phase Transformations"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 757-761

Abstract: Partial vapor pressures of copper and gallium were determined over copper-gallium (15.5 at-%) alloy in the temperature interval 1171-1395°K. Experimental data plotted as log p vs the inverse temperature show that the functions are not linear, but complex curves with many extrema, exceeding considerably any possible experimental error. The partial pressure curve of gallium exhibited such anomalies much more than did copper and they appeared in liquid, heterogeneous, and solid phases. In the fusion process the partial pressure of copper vapor was noticed to drop. Contrary to some reported data, radioactivity did not affect markedly the behavior of copper vapor, except that the rate of the drop in partial pressure of copper vapor was increased. On the basis of differential-thermal analysis, phase conversions were determined to take place at: 1256±3°K, 1196±3°K, 1299±3°K, and 1236±3°K. The authors thank N.G. Savostina for participating in the research.

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Ion Exchange

USSR

UDC 615.281.547.551.525.211.1].022.1

AL'TSHULER, G. H. and ~~SABIRKHIZOVA~~; Novokuznetsk-Scientific Research Chemico-Pharmaceutical Institute

"Use of Ionites in the Production of Chemico-Pharmaceutical Preparations. Report VIII. Exchange of Sulfanilamide, Ethasol, Norsulfasol and Pthalasol Ions with Chloride Ions"

Moscow, Khimiko-Farmatsevticheskii Zhurnal, Vol V, No 9, 1971, pp 34-37

Abstract: The possibility of the use of ion-exchange technology to extract norsulfasol from sewage has already been described by AL'TSHULER et al. The present study was directed at a similar procedure for obtaining certain sulfanilamide compounds of the thiasol series, and also sulfanilamide. Four compounds of this group were studied to determine thermodynamic constants of exchange of organic ions by chlorine ions. It is concluded that the method might be feasible for the extraction of these compounds from sewage water with a high content of inorganic impurities.

Acc. Nr.

AP0048835

Abstracting Service:
CHEMICAL ABST.

5-70

Ref. Code

2180460

91082d Polymeric colloidal systems analogous to soap solutions. Sogolova, T. I.; Sapozhnikova, L. N. (USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(2), 104-5 (Russ), Addn. of EtOH to an NH_3 -satd. aq. soln. of acrylic acid-maleic anhydride copolymer (I) (mol. wt. 0.9×10^5) gave an opalescent liq. which, like soap solns., did not sep. into layers on long standing. The turbid liq. became clear on heating, apparently due to melting of the colloidal particles. Cooling this soln. again gave a turbid liq. Electron microscopy showed that spherical and elongated particles of colloidal dimensions were present in the liq. The liq. was considered a polymeric analog of a soap soln. The colloidal properties of the system were apparently due to the supramol. structuring of I in soln. DBJR

L.D

REEL/FRAME

13800602

USSR

UDC 548.74:539.23

SAPOZHNIKOVA, L. M., and SOROKIN, L. M., Institute of Semiconductors, Academy of Sciences USSR

"Production of Epitaxial Nickel Films and Study of Their Structure"

Moscow, Kristallografiya, Vol 16, No 5, Sep-Oct 71, pp 1018-1021

Abstract: The authors investigated the possibility of obtaining epitaxial nickel films by the method of chemical transport in a small gap. Magnesium oxide was used as the substrate. Films were grown with a small gap between source and substrate at $P_{H_2} = 5-10$ mm Hg, $P_{HCl} = 10$ mm Hg, source temperature $T_1 = 900-1000^\circ$ C, substrate temperature $T_2 = 820-920^\circ$ C, temperature gradient between source and substrate $\Delta T = 30-60^\circ$, growth rate 1-2 microns/min. The resultant epitaxial nickel films were 5-20 microns thick with a mirror surface. X-ray diffraction analysis showed them to be single-crystal with $[100]_{Ni} \parallel [100]_{MgO}$ orientation. In order to determine the defect structure of the films, as well as the effect of substrate treatment method on the

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SAPOZHNIKOVA, L. M., and SOROKIN, L. M., Kristallografiya, Vol 16, No 5, Sep-Oct 71, pp 1018-1021

quality of the nickel films being grown, substrates and films were treated in selective etchants at room temperature, and the etch pits were studied in a metallographic microscope. It was found that the perfection of the film structure depends essentially on the substrate surface treatment before growing. The most perfect films are obtained on substrates chemically polished in boiling orthophosphoric acid (85 percent H_3PO_4) diluted with water in a 1:1 ratio.

The authors thank N. F. KARTENKO and G. N. MOSIN for the X-ray diffraction and electron microscope analysis of the films, YA. M. KSENDZOV, B. T. MELEKH and S. A. SEMENKOVICH for their interest in the work and their discussion of the results.

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- 75 -

USSR

UDC 621.373:535.06

ANTIPOV, B. A., ZUYEV, V. YE., PYRSIKOVA, P. D., SAPOZHNIKOVA,
V. A.

"Investigation of the Shape of the Methane Absorption Line Using a
Laser Controlled by a Magnetic Field"

Leningrad, Optika i Spektroskopiya, No 6, Dec 71, pp 899-902

Abstract: The shape of the methane absorption line with center 2947.888 cm^{-1} at methane pressures from 1 to 6 mm Hg was investigated. It is noted that the resolution of existing spectral devices did not generally give a true picture of the shape of the absorption line. Studies of the distorted shape of the spectral line are of interest to spectroscopists since the shape of the line, more than any other parameter, is sensitive to various intermolecular and intramolecular interactions. A laser is suggested as very promising for the study of the true shape of the line, since the radiation line of the laser is close to the absorption line being studied and it can be tuned by the same method. A He-Ne laser with a wavelength of 3.39μ was used as a radiation source in studying the methane absorption line. The length of the laser resonator was 28 cm and the diameter of the discharge tube did not exceed 4 mm. The laser was

USSR

ANTIPOV, B. A. et al, Optika i Spektroskopiya, No 6, Dec 71,
pp 899-902

placed in a solenoid of length 76 mm where the magnetic field strength varied from 0 to 600 gauss. The length of the solenoid was three times the length of the gas tube in order to ensure a high homogeneity of the magnetic field inside the tube. Values of the integral intensity and the half-width of the line were found to be $1.1 \pm 0.1 \text{ atm}^{-1} \cdot \text{cm}^{-1}$ and $0.0045 \pm 0.0004 \text{ cm}^{-1}$, respectively. Both single-frequency and multimode helium-neon lasers were used in the measurements. It is claimed that the technique makes it possible to study the effect of partial pressures of various gases, temperature, and total pressure on the change in monochromatic absorption coefficients at the center of the line and at various distances from it. A comparison of experimental and calculated values shows that the shape of the methane absorption line obtained in the experiment may be considered practically undistorted.

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1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--REACTION OF HOLMIUM WITH A BOROSULFOALIZARIN COMPLEX AND
ETHYLENEDIAMINE -U-
AUTHOR-(03)-SERDYUK, L.S., KHATNYUK, L.I., SAPOZHNIKOVA, V.I.
COUNTRY OF INFO--USSR
SOURCE--UKR. KHIM. ZH. 1970, 36(2), 124-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HOLMIUM, ETHYLENEDIAMINE, COMPLEX COMPOUND, CHEMICAL ANALYSIS,
CHEMICAL INDICATOR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1112 STEP NO--UR/0073/70/036/002/0124/0128
CIRC ACCESSION NO--AP0128539
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128539

ABSTRACT/EXTRACT--(U) GP-D- ABSTRACT. HQ FORMS AT PH 9.5-10.1 WITH ALIZARINE S AND (CH SUB2 NH SUB2) SUB2 A 1:4:2 COMPLEX ABSORBING AT 540 NM. TO DET. HQ, MIX 6 ML 4PERCENT AQ. H SUB3 BO SUB3, 4 ML 0.001M ALIZARINE, S, A KNOWN VOL. OF 5 TIMES 10 PRIME NEGATIVE4 HOCL SUB3, AND 0.9 ML 20PERCENT AQ. (CH SUB2 NH SUB2) SUB2. DIL. TO 25 ML AND MEASURE THE ABSORBANCE AT 540 NM. THE COMPLEX IS QUITE STABLE, SINCE RATHER LARGE EXCESSES OF NA K TARTRATE, NAF, NA SUB2 HPO SUB4, AND ASCORBIC ACID DO NOT INTERFERE. FACILITY: DNEPROPETROVSK. GOS. UNIV., DNEPROPETROVSK, USSR.

UNCLASSIFIED

USSR

UDC 678.674.004.14:621.397

SED OV, L. N., VLADIMIROVA, Z. V., SAPOZHNIKOVA, YE. I., MAKEYEVA, A. A., SEMENOV, L. G., MAK-MILLIN, D. M., BAKANOV, YU. A., DIDZHYULENE, D. I., MALKINA, F. S., and ZHLABIS, S. B.

"Polyester Hermetic-Sealing Compounds"

Moscow, Plasticheskiye Massy, No 6, 1970, pp 61-62

Abstract: The authors studied compounds for the hermetic sealing of horizontal output transformer coils for television receivers. These compounds should have low viscosity in the initial state and a high hardening rate up to 100°C. In the hardened state they should possess self-extinguishability, water resistance, good mechanical and electric insulation properties, and stability of properties up to 120°C. The principal components chosen were polyester resins PN-1 and PN-69. Because of the requirement of self-extinguishability, special additives (antimony trioxide and chlorine- or fluorine-containing polymers) were introduced into the resins. In addition, mineral fillers (talc, mica, powdered quartz, titanium dioxide, powdered silica gel, etc.) were added to give the sealing compounds

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USSR

SEDOV, L. N., et al, Plasticheskiye Massy, No 6, 1970, pp 61-62

the requisite viscosity and to lower their cost. The article gives data on the hermetic sealing process. These self-extinguishing compounds are being used for the hermetic sealing of horizontal output transformers for black-and-white (1 class) and color television sets and viewing monitors.

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USSR

VOYTsENYa, V. S., ONISHchENKO, I. N., SAPPa, N. N., SAFRONOV, V. G., and
TRUBCHAHINOV, S. A.

"Interactions of Moving Plasma with Non-Uniform Magnetic Fields"

Kiev, Fizika Plazmy i Problemy Upravlyayemogo Termoyadernogo Sinteza, No 4,
1973, pp 105 - 113

Abstract: Various types of instabilities have been detected in plasmas moving in a uniform magnetic field, and the unstable movements are apparently determined by the properties of the plasma and the conditions of its entry into an axial magnetic field, independently of the source. Systems in which the magnetic field increases with increasing radius and systems with force-line intersections (helical symmetry) restrict some of these instabilities. Experiments conducted with two configurations - a direct stellarator and a quadrupole magnetic field in combination with an axially symmetric field showed that plasma at a density of approximately 10^{13}cm^{-3} moves along force-lines, leading to a better result for the stellarator field than for the combination of an axially symmetric field and a multipole field. The stellarator field was found to reduce the non-uniformity of electric potential observed with the other field and to leave significantly less plasma close to the walls of the container.

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1/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--KINETICS OF PARALLEL REACTIONS DURING MELANJIDIN FORMATION -U-
AUTHOR--(03)-KOLCHEVA, R.A., KHARIN, S.YE., SAPRONOV, A.R.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., PISCH, TEKHNOL. 1970, (2), 206-10
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--GLUCOSE, ALANINE, PHOSPHATE, BIOLOGIC PIGMENT
CENTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1674 STEP NO--UR/0322/70/000/002/0206/0210
CIRC ACCESSION NO--AT0133579
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO---ATO133579

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. KINETICS OF DECOMPN. OF D-GLUCOSE (I) AND ALPHA-ALANINE (II) AND OF MELANOIDIN FORMATION WERE MEASURED IN PHOSPHATE BUFFER SOLNS. (PH 3.46-7.97) OF 0.2M I AND (OR) II AT 100DEGREES. A CONSIDERABLE PROPORTION OF I AND II DECREASE DURING MELANOIDIN FORMATION IS DUE TO THEIR DECOMPN. EQUATIONS ARE DERIVED FOR CALC. OF CONSTS. IN SIMILAR REACTION SYSTEMS. FACILITY: VORONEZH. TEKHNL. INST., VORONEZH, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--13NOV73
TITLE--ELECTROKINETIC POTENTIAL OF PIGMENTS -U-
AUTHOR--SAPRONOV, A.R. S
CCUNTRY OF INFO--USSR
SOURCE--FERMENT. SPIRT. PROM. 1970, 36(1), 13-15
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PIGMENT, SACCHARIDE, ELECTROPHORESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/1920 STEP NO--UR/0071/70/036/001/0013/0015
CIRC ACCESSION NO--AP0103647
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0103647

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PIGMENTS OF INTEREST IN THE ALC. INDUSTRY WERE MELANOIDINS, THE PRODUCTS OF ALK. TREATMENT OF MONOSACCHARIDES, VARIOUS FRACTIONS OF CARAMEL, ETC. ALL THESE MATERIALS ARE ACIDIC, AND AT PH VALUES GREATER THAN 3-5 ARE PRESENT IN SOLN. AS POLYANIONS. THE ELECTROKINETIC POTENTIAL ZETA WAS DETD. AT PH 0-9, AND DATA ARE PRESENTED IN THE SHAPE OF CURVES. A CHANGE OF PH CHANGES THE SIZE OF THE PARTICLES, WHICH IN TURN, LEADS TO A CHANGE OF ZETA. FOR CARAMELAN THE PARTICLE RADIUS WOULD CHANGE ONLY BY 1-10 THE VALUE FOUND FOR CARAMELIN, BUT ZETA WOULD INCREASE 3 FOLD. THESE DETNS. WERE MADE ON THE BASIS OF ELECTROPHORESIS IN A GRADUATED U SHAPED TUBE.

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--KINETICS OF THE DECOMPOSITION OF SOME AMINO ACIDS IN RELATION TO PH
-U-
AUTHOR--(03)-KHARIN, S.E., KOLCHEVA, R.A., SAPRONOV, A.R.
COUNTRY OF INFO--USSR
SOURCE--FERMENT. SPIRT. PROM. 1970, 36(2), 21-3
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--AMINO ACID, CHEMICAL DECOMPOSITION, HYDROGEN ION CONCENTRATION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0795 STEP NO--UR/0071/T0/036/002/0021/0023
CIRC ACCESSION NO--AP0119702
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT76

CIRC ACCESSION NO--AP0119702

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BUFFERED SOLNS. OF 0.2 MOLE-L. OF BOTH MONOBASIC AND DIBASIC AMINO ACIDS WERE MADE TO UNDERGO DECOMPOSITION 5 HR AT 130DEGREES AT VARIOUS PH VALUES, ESP. 5-7. THE GREATEST AND FASTEST DECOMPNS. OCCURRED CLOSE TO THE ISOELECTRIC POINT OF THE AMINO ACIDS; BOTH IN THE MORE ACID OR MORE ALK PH REGIONS THE ACIDS WERE MORE STABLE; AT PH 1 THE DECOMP. WAS SLOWED DOWN TO ONE TENTH OF THE VALUE AT THE ISOELECTRIC POINT, AND AT PH 10 THE DECOMP. DROPPED ALMOST TO ZERO. FACILITY: VORONEZH. TEKHNOLOG. INST., VORONEZH, USSR.

UNCLASSIFIED

Acc. Nr:

AP 0050805

Abstracting Service:
CHEMICAL ABST. 1-7c

Ref. Code:

4R0339

S

102066e Role of buffering in the decomposition of sucrose.
Ivanov, S. Z.; Mil'kova, Z. A.; Sapronov, A. R. (Voronezh.
Tekhnol. Inst., Voronezh, USSR). *Sukh. Prom.* 1970, 44(1),
31-4 (Russ). Solns. 0.5M in sucrose and 0.17M in nonsugars,
with original pH 7.5, were refluxed. The decompn. was followed
by detn. of dry matter by refractometry, detn. of pH at 90° with
a pH meter LPU-01 and detn. of sucrose by iodometry. The
decompn. is characterized by S-curves which fit the equations
for autocatalytic processes. The changes in pH follow the same
pattern. Autohydrolysis is catalyzed by NaCl and glucose and
inhibited by melanoids, the products of alk. decompn. of invert
sugar and by glutamic acid. The effect of the nonsugar complex
was examd. by heating a sugar soln. with added molasses at pH 7.
Hydrolysis was inhibited with decreasing purity of the sugar.

Olaf Thormten

REEL/FRAME
19810807

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USSR

UDC 612.826.4.014.46:[615.357.453+615.357.814.3

RYZHENKOV, V. Ye. and SAPRONOV, N. S., Department of Pharmacology Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Effect of Glucocorticoids and ACTH on the Excitability of the Hypothalamus and Limbic System in Dogs"

Moscow, Farmakologiya i Toksikologiya, No 5, 1972, pp 556-560

Abstract: Intravenous injection of dogs with glucocorticoids (hydrocortisone, dexamethasone) and ACTH had a biphasic effect on the excitability of the posterior hypothalamus - an increase followed by a more pronounced and longer-lasting depression. Unlike the glucocorticoids, ACTH did not have a direct effect on the excitability of the posterior (premamillary region) or anterior (supraoptic region) hypothalamus when injected into these brain structures. Injection of hydrocortisone and ACTH into the ventromedian amygdala decreased its excitability much more than did ACTH. Hydrocortisone increased while ACTH slightly decreased the excitability of the dorsal hippocampus.

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1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--COGRANULATION OF RUBBERS -U-
AUTHOR--(04)--KALINICHENKO, V.N., BLIKH, G.A., SAPRONOV, V.A., OGNEVSKIY,
L.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1),
113-15
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--GRANULE FORMATION, RUBBER PROCESSING PLANT, SYNTHETIC
RUBBER/(U)SKD RUBBER, (U)BSK RUBBER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0782 STEP NO--UR/0153/70/013/001/0113/0115
CIRC ACCESSION NO--AP0124451
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124451

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COGRANULATION OF SKD RUBBER BSK RUBBER (IN A 1:1 RATIO) LED TO IMPROVED EXTRUDABILITY AND DRYING CONDITIONS OF RUBBER GRANULES. COGRANULATION WAS PRESUMABLY ACCOMPANED BY A CHEM. REACTION WHICH IMPROVED THE PHYSICO MECH. PROPERTIES OF THE RUBBERS. FACILITY: DNEPROPETROVSK. KHIM. TEKHNOL. INST. IM. DZERZHINSKOGO, DNEPROPETROVSK, USSR.

UNCLASSIFIED

USSR

ATANOV, P. K., KATMAN, A. K., VASIL'YEV, G. F., ~~SAPRONOV, V. I.,~~ SILANT'YEV, P. P.

"Single-Pole Transistor Flip-Flop"

USSR Authors' Certificate No 250997, Filed 14 May 1968, Published 3 January 1970 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B110P, by N. V.)

Translation: The flip-flop suggested differs in that the load resistors are connected in series with the source-drain junctions of blocking single-pole transistors, the gates of which are combined and connected to the control input. The substrate of the blocking transistors is isolated from the substrate of the remaining flip-flop circuit. This allows the speed of the flip-flop to be increased while decreasing the dissipated power. One illustration.

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USSR

UDC 621.396.6-161.5

SAPRONOV, M. I., GLAZOV, V. M., SOLOV'YEV, I. L.

"Protection of Integrated Circuits Based on MOS Transistors From a High Electrostatic Potential"

Elektron. prom-st'. Nauchno-tekhn. sb. (Electronics Industry. A Scientific and Technical Collection), 1970, No 1, pp 45-48 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V180)

Translation: The authors examine breakdown of the dielectric beneath the gate of an MOS-structure produced by a high electrostatic potential, where this breakdown is due to the accumulation of charges on the elements of equipment and voltage surges during transient processes. Experiments are described on protecting microcircuits of MOS structure from breakdown by using semiconductor diodes and transistors made in an integrated technological cycle with the microcircuit. Three illustrations, bibliography of two titles. H. S.

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USSR

UDC: 621.319.45:541.135.3

SAPRONOVA, L. S.

"A Method of Applying Manganese Dioxide to the Dielectric of Thin-Film Capacitors"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 6, Feb 71, Author's Certificate No 294191, Division E, filed 14 Aug 68, published 26 Jan 71, p 161

Translation: This Author's Certificate introduces a method of applying manganese dioxide to the dielectric of thin-film capacitors based on barrier-layer metals by the method of electrochemical treatment of the dielectric in an aqueous solution of manganese nitrate. As a distinguishing feature of the patent, the reliability and stability of the capacitor parameters are improved by electrochemical treatment of the above-mentioned dielectric in an alcohol solution of manganese nitrate.

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USSR

UDC 621.319.4

VASIL'YEV, G. F., MESHKOV, V. A., SAPRONOVA, L. S.

"Effect of Tantalum Film Defects on the Quality of a Thin-Film Tantalum Capacitor"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Engineering. Scientific and Technical Collection. Microelectronics), 1971, vyp. 5(31), pp 142-144 (from RZh-Radiotekhnika, No 5, May 72, Abstract No 5V418)

Translation: The results are presented from a study performed on capacitors with Ta_2O_5 dielectric which was obtained by anodizing and heat treating a β -tantalum film. The data obtained for primed (with a layer of thermally oxidized Ta) and unprimed substrates are compared. There are 3 illustrations and a 2-entry bibliography.

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USSR

UDC 621.357.1:669.3-492.2

GEYNRIKHO, K. YA., AYDAROV, R. ZH., SAPRYGIN, A. F., and YARGSLAVITSEV, A. S.

"Preparation of Copper Powders at High Velocities of Electrolyte Circulation"

Tr. In-ta organ. kataliza i elektrokhimii. AN Kaz SSR (Proceedings of the Institute of Organic Catalysts and Electrochemistry. Academy of Sciences Kazakstan SSR), No 33, 1972, pp 37-42 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L332)

Translation: It was determined that to prepare a copper powder in a circulating electrolyzer the optimum conditions are as follows: the velocity of the electrolyte flow must not be less than 2 m/sec, temperature of the solution 30-40°C, concentration of Cu in solution 1-8 g/L. Under these conditions, the D_k may attain $2-3 \times 10^4$ a/m².

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USSR

UDC 621.791:621.642.001.2

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BOGOMOLOVA, A. S., Candidate of Technical Sciences, and BAKSHI, O. A., Doctor of Technical Sciences, Chelyabinsk Polytechnic Institute; SEDYKH, V. S., Doctor of Technical Sciences, and TRYKOV, YU. P. and BELOUSOV, V. P., Candidates of Technical Sciences, Volgograd Polytechnic Institute; MORISOVA, V. A., KARAN, A. B., POPOV, A. S., and SAPRYGIN, V. D., Engineers, Moscow

"Practical Design of Welded Vessels and Pipe From Dissimilar Materials"

Moscow, Svarochnoye Proizvodstvo, No 9, 1973, pp 3-6

Abstract: Welding tests were conducted for welding dissimilar materials to join dissimilar metals in the fabrication of vessels and pipe. A steel+copper+niobium+titanium joint was made from steel Kh18Ni9Ti, M1 copper, niobium, and OT4 titanium, and a magnesium alloy+titanium+aluminum+aluminum alloy joint was made from magnesium alloy MA2-1, VT1 titanium, Al1 aluminum, and aluminum alloy AMg6. The goal of this work was to determine the proper materials which would yield a reliable diffusion barrier in the intermediate weld layers, and a joint with a strength equal to that of the base metal. Mathematical formulas are given for calculating the tensile and yield strengths of the soft sublayer and critical magnitude of relative thickness of the soft sublayer for which an equal-strength joint can be achieved. For the titanium-steel joint the

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USSR

BOGOMOLOVA, A. S., et al., Svarochnoye Proizvodstvo, No 9, 1973, pp 3-6

the relative thickness required for the copper sublayer was approximately 0.5 while this value for the magnesium-aluminum was not computed. 4 figures, 1 table, 12 bibliographic references.

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USSR

UDC 518.5:681.3.06

KRISILOV, A. D., YANENKO, V. M., POPOV, A. A., YASINOVSKIY, M. A., SAPRYGIN, Y. G.

"The Problem of Algorithmization of the Differential Diagnosis of Rheumatism"

Kibernet. i Vychisl. Tekhn. Resp. Mezhd. Sb. [Cybernetics and Computer Engineering, Republic Interdepartmental Collection], No 7, 1970, pp 102-107, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V641 by the authors).

Translation: A list of characteristics is suggested for description of diseases being diagnosed, including, in addition to the symptoms, certain intermediate diagnostic information. The applicability is demonstrated and certain altered statistical decision rules are calculated by computer. Results are presented from machine differential diagnosis of five diseases and the direction of further work is noted.

Optical

USSR

SAPRYKIN, E. G., YUDIN, R. N., ATUTOV, S. N.

UDC 621.373.535

"Self-Mode-Selection of a 0.63 Micron Laser with Augmented Pressure in the Discharge Tube"

Leningrad, Optika i Spektroskopiya, Vol XXXIV, No 4, 1973, pp 755-761

Abstract: An experimental study was made of the spectral composition of the radiation of an He-Ne Laser ($\lambda = 0.63$ microns) with augmented pressure in the discharge tube. Powerful single-mode generation was obtained without using selection elements in the resonator. The generation conditions of the laser are described. With an increase in pressure the multimode generation becomes single mode. The power of the single mode generation can be half the maximum power of the laser. A study was made of several structural designs for the single mode lasers with pressure mode selection.

A plane-spherical resonator with a conical tube repeating the transverse field distribution of the resonator provided the most efficient suppression of the transverse modes. This made it possible to obtain the highest power in one mode. The various transverse modes are fed from spatially different groups of atoms, and the competing binding among them is attenuated. Thus, the single-mode regime begins at a higher pressure than in the case of modes of one type, and it has lower power. The conical tube repeating the configuration of the regulator field promotes the obtaining of one mode inasmuch as

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USSR

SAPRYKIN, E. G., et al., *Optika i Spektroskopiya*, Vol XXXIV, No 4, 1973, pp 755-761

the primary contribution to the amplification is made by the thin part of the tube, and the field effects in this part of the tube are greater. A large volume of gas in the entire tube promotes significant power. Thus, in the described laser with a plane-spherical resonator, in spite of the appreciably shorter length the single mode generation power was greater than in a laser with a symmetric spherical resonator. There was no necessity for suppressing the generation on the 3.39 micron transition.

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USSR

UDC535.34.538.12

IM TKHEK-DE, SAPRYKIN, E. G., and SHALAGIN, A. M.

"Some Anomalies in the Absorption of a Light Wave by a Medium Placed in a Magnetic Field"

Leningrad, Optika i Spektroskopiya, Aug 73, pp 202-204

Abstract: An experimental discovery has been made of the presence of an anomalous relationship between the absorption coefficient of laser radiation (0.6328 microns) by excited neon atoms at the $3s_2-2p_4$ transition, and the value of a transverse magnetic field. An investigation was made of the absorption of linearly and circularly polarized monochromatic radiation at different gas pressures, discharge currents, and radiation intensities. It was revealed that on the curve of the relationship of the absorption coefficient to the value of the magnetic field there appears an acute "peak" structure, not predicted by the ordinary theory, with the center at the zero of the magnetic field. This "peak" has a relative amplitude of about 10^{-4} and a width much smaller than the Doppler width, and occurs at arbitrarily small radiation intensities. Its width and amplitude parameters in relation to the value of total absorption for linearly and circularly polarized waves are approximately the same. An investigation was made of the parameters of the "peak" to the pressure, the discharge current, the intensity and polarization of the transmitted radiation. 2 figures. 8 references.

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USSR

UDC: None

IM TKHEK-DE, RAUTIAN, S. G., ~~SAPRYKIN, E. G.~~ SMIRNOV, G. I., and
SHALAGIN, A. M.

"Effect of Laser Field Polarization on Nonlinear Interference
Effects"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 62,
No 5, 1972, pp 1661-1665

Abstract: Experiments are described for investigating the spectral dependence of the absorption coefficient of a weak monochromatic field on the $3s_2-2p_4$ transition of neon in a strong field interacting with the transition when both fields are in the same direction. The observed effect is the dependence of the form and width of the absorption line for the weak field on the polarization of the fields. A frequency-stabilized He-Ne laser with pressure-selected modes of operation is used as the source of the strong field, its radiation being modulated by a mechanical interrupter. Further details of this rather complicated equipment are given together with a diagram, and the results of the experiment are interpreted. It is noted that the effect observed had been predicted by A. Dienes (Phys. Rev., 174, 400, 414, 1968). The authors are associated with the Semiconductor Physics Institute, Siberian Division of the USSR Academy of Sciences.

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USSR

UDC 621.372.831.1

SEDYKH, V. M., DENISOV, D. S., LYAPUNOV, N. V., SAPRYKIN, I. I.

"Calculating the Equivalent Coupling Diagram of Two Coaxial Lines with Different Sizes of Conductors"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 61-65 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B172)

Translation: The compensating shift for which the coupling has minimum reflection is calculated. There are 2 illustrations and a 5-entry bibliography.

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USSR

UDC 621.372.833

SEDYKH, V. M., DENISOV, D. S., LYAPUNOV, N. V., SAPRYKIN, I. I.

"Calculating Nonreflecting Supporting Discs in Coaxial-Strip Junctions"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic
Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 55-
61 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B173)

Translation: Expressions are obtained for calculating the voltage standing
wave ratio of a support disc as a function of its geometric dimensions and
operating frequency. There are 2 illustrations and a 5-entry bibliography.

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Television

USSR

UDC 621.397(088.8)

AKSENOV, D. D., SAPRYKIN, K. V.

"Television Stroboscope"

USSR Author's Certificate No 252667, Filed 8 Apr 55, Published 23 Feb 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9G226)

Translation: The patented device for visual observation and recording of phenomena in rotating objects is a closed television system with application of pulse illumination of the transmitting tube for synchronizing the rotating target with the transmitted signal. Synchronization is realized by means of a square pulse generator which is controlled by a photoelement optically connected to the target.

USSR

UDC 615.849.19.015:612.845.1-086.3

KRASNOV, M. M., SAPRYKIN, P. I., DORONIN, P. P., NIKOL'SKAYA, G. M.,
AKOPYAN, V. S., and MAMEDOV, N. G.

"Electron-Microscopic Study of Tissues of the Eye Fundus Following Laser
Coagulation"

Moscow, Vestnik Oftal'mologii, No 2, 1973, pp 9-12

Abstract: The changes produced in the tissue of the eye fundus following exposure to therapeutic doses of laser radiation were studied in experiments on pigmented rabbits of the chinchilla breed with the purpose of obtaining data pertaining to the optimum conditions of applying laser radiation for photo-coagulation of the retina in the therapy of retinal detachment. Radiation in the energy range of $0.02-0.05 \text{ J} \pm 8\%$ (energy densities of $5.5-17.0 \text{ J/sq. cm.}$) emitted by a ruby laser was applied. The irradiated eye tissues were subjected to microscopic and electron-microscopic study on sacrificing the animals within periods of 10 min-3 wks after photocoagulation. The damage was apparently limited to the external layers of the retina and the pigmented epithelium and deeper layers were affected only slightly. Two types of damage to the retina and to the pigmented epithelium were observed, one due to mechanical effects of an explosive nature and another due to thermal coagulation effects. Within 2-3 wks the part of the photoreceptor apparatus at the site of the injury

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USSR

KRASNOV, M. M., et al., Vestnik Oftal'mologii, No 2, 1973, pp 9-12

produced by the radiation was substantially restored to a state in which it apparently was capable of functioning. The sclera was not affected. The study that had been conducted indicated that in the search for optimum conditions of laser irradiation one must attempt to reduce as far as possible mechanical effects and restrict the thermal effects to the layer of pigmented epithelium.

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USSR

UDC: 591.185.5+612.821.8

SAPRYKIN, V. A. and SAGAL, A. A.

"Invariance Principle of the Perceptive Characteristics of the Human Auditory Analysor for Signal Compression or Expansion"

Moscow, Doklady Akademii Nauk SSSR, Vol 208, No 2, 1973, pp 490-492

Abstract: The results of an experimental investigation into the adequacy of representation and the characteristics of the human auditory analysor apparatus as a stochastic communications system are given. Two basic parameters are considered: the indeterminacies of the signals and their energy levels, represented by the symbols of h and ϵ respectively. Details of the experiment and of the method followed are given in an earlier article (V. A. Saprykov et al, Biofizika, 13, No 6, 1968, p 1,085); the method of the present paper, however, differs from that of the first in the following way. In the first, the subject was given tonal signals, at an average succession interval of 10.4 sec, in random order against a continuous background of masking noise. The subject is required to minimize the errors in signal transmission. In the present paper, the auditory signals are given in two sets: one monaural, the other binaural. It is concluded that the characteristic parameters of the tonal signals are their signal/noise ratios rather than their frequency and duration, as other researchers (e.g., I. Hirsh, The Measurement of Hearing, N.Y., 1952) insist.

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USSR

UDC 551.596;534-143

VOYTSEKHOVSKAYA S. L., KAYDANOV, YU. L., SAPRYKIN, V. A.

"Problem of Representing Fields by the Sampling Method"

Tr. 2-y Vses. shkoly-seminara po stat. gidroakustike (SG-2) (Works of the Second All-Union Seminar on Statistical Hydroacoustics (SG-2)), Novosibirsk, Nauka, 1971, pp 32-52 (from RZh-Fizika, No 12, Dec 72, Abstract No 12Zh613)

Translation: The representation of hydroacoustic fields given in multidimensional spaces by the sampling method is, in practice, a problem which is difficult to realize. The authors obtained a representation by the sampling method of some classes of fields, including the field having axial symmetry. The field spectrum is given by a finite function with a medium in the form of an n -dimensional step with its center at the coordinate origin. A study was made of the general case in which the field spectrum is represented in the form of a quadratic function and also the case of applying the results obtained to represent fields permitting approximation of the spectrum in the form of a quadratic function. The authors present an example of representing the correlation function of the field and also evaluating the errors in representing the field by the sampling method.

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USSR

UDC: 519.21

KAYDANOV, Yu. L., PADERNO, V. I., SAPRYKIN, V. A.

"On the Problem of Describing Random Anisotropic Fields"

V sb. Metody predstavleniya i apparaturn. analiz sluchayn. protsessov i poley. 3-y Vses. simposium Sekts. 2 (Methods of Representation and Instrumental Analysis of Random Processes and Fields. Third All-Union Symposium. Section 2), Leningrad, 1970, pp 27-29 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V149)

Translation: Let $R(\bar{x}, \bar{y})$ (\bar{x}, \bar{y} are points in an n -dimensional Euclidean space R^n) be a correlation function of the random field

$$\psi(\bar{x}) = \exp \left\{ - \langle A\bar{x}, \bar{x} \rangle \right\} \int_{R^n} n(\bar{y}) K(\bar{x} - \bar{y}) d\bar{y}$$

where $n(\bar{y})$ is "white" noise on R^n .

$$K(\bar{x}) = F^{-1} \left\{ \exp \left\{ - \langle B\Lambda^{-1}(\bar{\omega} - \bar{\Omega}), \Lambda^{-1}(\bar{\omega} - \bar{\Omega}) \rangle \right\} \right\},$$

F^{-1} is an inverse Fourier transform operator, A and B are positively defined matrices, Λ is a diagonal matrix with elements $\Omega_1, \dots, \Omega_n$. An algo-

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KAYDANOV, Yu. L. et al., Metody predstavleniya i apparaturn. analiz sluchayn. protsessov i poley. 3-y Vses. simpozium. Sekts. 2, Leningrad, 1970, pp 27-29

rithm is discussed for construction of eigenfunctions and eigenvalues of the correlation kernel $R(\tilde{x}, \tilde{y})$ on $R^n \times R^n$. M. Yadrenko.

USSR

UDC: 519.21

SAPRYKIN, V. A., SAPRYKINA, I. P.

"Frequency-Time Approach to Prediction of One Class of Random Processes"

V sb. Metody predstavleniya i apparaturn. analiz sluchayn. protsessov i poley. 3-y Vses. simpozium. Sekts. 2 (Methods of Representation and Instrumental Analysis of Random Processes and Fields. Third All-Union Symposium. Section 2), Leningrad, 1970, pp 30-33 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V144)

Translation: The authors consider the random process

$$z(t) = x(t) + y(t) + n(t),$$

where $n(t)$ is stationary Gaussian noise with zero average, and with the spectral function $\Phi(\omega)$. $x(t)$, $y(t)$ belong to classes of functions X , Y . Classes X and Y consist of functions whose Fourier transforms for X have a carrier around zero, while the carrier for class Y is shifted toward higher frequencies. It is formally assumed that the carriers do not intersect. Estimates are obtained in this paper for the coefficients of

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SAPRYKIN, V. A., SAPRYKINA, I. P., Metody predstavleniya i apparaturn.
analiz sluchayn. protsessov i poley. 3-y Vses. simpozium. Sekts. 2,
Leningrad, 1970, pp 30-33

the expansions of $x(t)$, $y(t)$ with respect to functions of a system of continued spheroidal wave functions. The prediction obtained from these expansions is also presented. It is stated that for digital computer calculations it is more profitable to substitute an orthogonal system of functions for the continued spheroidal wave functions, where the substituted functions are "close" to the wave functions -- viz. functions of a parabolic cylinder. V. Makovskiy.

USSR

TYURIN, A. M., SAPRYKIN, V. A., and SHCHEGLOV, G. A.

"Evaluation of the Possibility of Identification of Pure Tonal Signals by the Human Auditory Analysor"

Moscow, Biofizika, Vol 15, No 5, Sep/Oct 70, p 942

Abstract: A study was made of the sensitivity of the auditory analysor with respect to the frequency, duration, and intensity of the signal. On the basis of the experimental data, a relationship is established for the probability of correct identification of signals as a function of each of these three parameters. It was established that the probability characteristics of identification are subject to a logarithmically normal law. Experimental results and calculations showed that the resolving power of the auditory analysor with respect to frequency and time is such that the relationship sought can be obtained only by means of an essentially nonlinear device. A nonlinear mechanism of augmentation of the degree of perception is discussed, on the assumption that the velocity of propagation of excitation is is function of the intensity of the stimulus applied. (The complete text of the article was filed at VINITI [All-Union Institute of Scientific and Technical Information] under No 1786-70 on 4 June 1970.)

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USSR

UDC: 8.74

~~SAPRYKIN, V. I.~~, FLEROV, A. I.

"Problem of Determination of Time Discretization Step"

Kibern. Tekhn. [Cybernetics Equipment--Collection of Works], Kiev, 1971, pp 270-277 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V549, by V. Mikheyev)

Translation: A method is suggested for conversion and reduction of redundancy of functions studied in the process of creation and transmission of information. The methods consider: 1) the method of conversion of a continuous function to a discrete signal, selection of the discretization step as to time and amplitude; 2) the type of restoration function, methods of determination of restoration and approximation function; 3) criteria for evaluation of the accuracy of approximation and restoration; 4) compactness of the algorithm of functioning of the continuous information system, reproduction and preliminary processing of information. Results are presented for conversion and reduction of redundancy of several functions using programs running on the "MIR" computer.

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USSR

UDC 3.74

KOSTETSKIY, E. A., NAZAROV, V. D., SAPRYKIN, V. I.

"Application of Combinatory Methods when Analyzing Multiposition Interchangeable Codes"

Pribory i sistemy avtomatiki. Resp. mezhyed. nauch.-tekhn. sb. (Instruments and Automation Systems. Republic Interdepartmental Scientific and Technical Collection), 1971, vyp. 20, pp 87-89 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V567)

Translation: A mathematical model is presented for calculating the number of code combinations with constant weight as a function of the number of independent groups by which the sample is taken and the number of members of each group. An algorithm is proposed for constructing such codes on a computer. It is noted that the results of the calculations on the computer confirm the correctness of the developed mathematical model.

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USSR

UDC: 8.74

SAPRYKIN, V. I.

"The MAL Algorithmic Language and its Application to Automation of Programming"

Vestn. Kiyev. politekhn. in-ta. Ser. avtomatiki i elektropriborostr., 1973, No 10, pp 44-51 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V613 by the author)

Translation: The paper describes the main peculiarities of the multi-purpose MAL high-level algorithmic language based on FORTRAN. A modular method of modeling is used which is based on transformation of signal graphs. Examples are given of setting up a plugged program for solving differential equations on an analog computer and a digital differential analyzer.

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USSR

UDC: 577.4

SAPRYKIN, V. I.

"Optimum Redundancy of the Elements in Data Transmission Systems With Regard to Three Types of Failures"

Pribory i sistemy avtomatiki. Resp. mezhved. nauch.-tekhn. sb. (Automation Devices and Systems. Republic Interdepartmental Scientific and Technical Collection), 1971, vyp. 20, pp 27-33 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V357)

[No abstract]

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USSR

UDC: 519.21

SAPRYKIN, V. A., SAPRYKINA, I. P.

"Frequency-Time Approach to Prediction of One Class of Random Processes"

V sb. Metody predstavleniya i apparaturn. analiz sluchayn. protsessov i poley. 3-y Vses. simpozium. Sekts. 2 (Methods of Representation and Instrumental Analysis of Random Processes and Fields. Third All-Union Symposium. Section 2), Leningrad, 1970, pp 30-33 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V144)

Translation: The authors consider the random process

$$z(t) = x(t) + y(t) + n(t),$$

where $n(t)$ is stationary Gaussian noise with zero average, and with the spectral function $\phi(\omega)$. $x(t)$, $y(t)$ belong to classes of functions X , Y . Classes X and Y consist of functions whose Fourier transforms for X have a carrier around zero, while the carrier for class Y is shifted toward higher frequencies. It is formally assumed that the carriers do not intersect. Estimates are obtained in this paper for the coefficients of

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SAPRYKIN, V. A., SAPRYKINA, I. P., Metody predstavleniya i apparaturn. analiz sluchayn. protsessov i poley. 3-y Vses. simpozium. Sekts. 2,
Leningrad, 1970, pp 30-33

the expansions of $x(t)$, $y(t)$ with respect to functions of a system of continued spheroidal wave functions. The prediction obtained from these expansions is also presented. It is stated that for digital computer calculations it is more profitable to substitute an orthogonal system of functions for the continued spheroidal wave functions, where the substituted functions are "close" to the wave functions — viz. functions of a parabolic cylinder. V. Makovskiy.

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USSR

UDC 539.3

TUL'CHIY, V. I., KICHIGIN, V. G., SAPRYKINA, L. T., and YURCHENKO, T. A.,
Nikolayev Shipbuilding Institute

"Concerning the Equilibrium of a Plate With Arbitrarily Situated Reinforced
Circular Apertures"

Kiev, Prikladnaya Mekhanika, No 1, 1971, pp 61-67

Abstract: The article deals with the two-dimensional stressed state of an infinite isotropic plate with any number of arbitrarily situated circular openings, the edges of which are reinforced by narrow elastic rings. The boundary conditions are written down with use of the complex Kolosov-Muskhelishvili potentials. By means of the series method in combination with the method of Cauchy-type integrals, the problem is reduced to an infinite quasiregular system of equations, which is realized on a digital electronic computer by the truncation method. The numerical data of some calculations are presented, which make it possible to ascertain the influence of the number of apertures on the stressed state of the plate. 2 figures, 1 table, 4 bibliographic entries.

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023

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--CATABOLITE REPRESSION OF ENZYME SYNTHESIS IN MUTANTS OF ESCHERICHIA
COLI WITH A DEFECT IN THE CARBOHYDRATE TRANSPORT SYSTEM -U-

AUTHOR--(04)--GERSHANOVICH, V.N., YUROVITSKAYA, N.V., SAPRYKINA, T.P.,
KLYUCHOVA, V.V.

COUNTRY OF INFO--USSR

SOURCE--DUKL. AKAD. NAUK SSSR 1970, 190(5), 1232-4

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BACTERIA MUTATION, ESCHERICHIA COLI, CULTURE MEDIUM, ENZYME,
CARBOHYDRATE, BIOLOGIC TRANSPORT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0705

CIRC ACCESSION NO--AT0122791

STEP NO--UR/0020/70/190/005/1232/1234

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0122791

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SYNTHESIS OF BETA GALACTOSIDASE BY E. COLI MUTANT P-34 GROWN IN A MEDIUM CONTG. ME THIOMALACTOSIDE WAS REDUCED TO WE-33PERCENT OF NOKMAL BY GLUCOSE. THIS INDICATES THAT GLUCOSE DIRECTLY REPRESSES THE ENZYME OF THE LAC OPERON AND THAT ITS COMPETITIVE BLOCKING OF GALACTOSE TRANSPORT IS A SECONDARY EFFECT, SINCE THE NOKMAL GALACTOSE TRANSPORT SYSTEM IS LACKING IN P-34. GLUCOSE SLIGHTLY STIMULATES THE SYNTHESIS OF TRYPTOPHANASE AND SERINE DEAMINASE BY P-34 GROWN IN MEDIA CONTG. TRYPTOPHAN AND SERINE, RESP., ALTHOUGH IT REPRESSES THE SYNTHESIS OF THESE ENZYMES BY UNMUTATED E. COLI. THUS, THESE ENZYMES ARE LESS SENSITIVE TO GLUCOSE REPRESSION THAN IS BETA GALACTOSIDASE. FACILITY: INST. EPIDEMIOLOG. MIKROBIOLOG. IM. GAMALEI, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.6.019.3

SAPRYNSKIY, V. V.

"Effect Which the Mutual Dependence and Noncontrollability of the Safety Factors for the Parameters of an Instrument Have on its Reliability"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHE Electronics), 1970, vyp. 8, pp 55-62 (From RZh-Radiotekhnika, No 12, Dec 70, Abstract No 15V271)

Translation: The author discusses methods of introducing a safety factor for parameters, the possibility of disregarding the interdependence of parameters in evaluating the reliability of an instrument, and the effect which the noncontrollability of certain parameters has on the reliability of an instrument. It is shown that in the case of fairly high reliability estimates obtained without regard to the interdependence of safety factors, these estimates may be noticeably affected by accounting for interdependence only on the side of an increase in value. It is also shown that the overall reliability of an instrument is limited from above by reliability with respect to those noncontrollable parameters which are statistically independent of the controllable parameters. resumé.

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USSR

UDC: 621.396.6.019.3

SAPRYNSKIY, V. V.

"On Criteria for Completeness of a System of Control Parameters for an Instrument"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology, Scientific and Technical Collection. SHF Electronics), 1970, vyp. 9, pp 13-15 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A163)

Translation: Designers are faced with the problem of completeness of a system of monitoring instruments in providing for reliability: if for some reason account is not taken of a certain number of parameters which are not monitored but which have an effect on working capacity, then no check can be made on the necessary reserves with respect to such parameters either. A completeness criterion is introduced which is based on defining the idea of the state of the instrument: it is assumed that a set of n parameters $\vec{X} = \{X_1, \dots, X_n\}$ determines the state of the instrument if the value of this set measured at some time t unambiguously determines the set at any subsequent time $t + \tau$. With this definition, the idea of completeness does not require the statistics of failures. The desired criterion is found by using covariational matrices of the coordinates of the vector \vec{X} to evaluate how closely sets of random quantities are interrelated. Bibliography of four titles. N. S.

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UDC: None

USSR

TITOV, A. N. and SAPSOVICH, B. I.

"A Phased Array as an Artificial Dielectric Antenna System"

Moscow, Antenny, No. 8, 1970, pp 13-27

Abstract: The field of an antenna array is usually considered as the superposition of the fields of the individual elements in the analysis of the array's radiative characteristics. For a particular array, such an approach involves serious difficulties. Interest has therefore been aroused by another approach based on the use of the integral characteristics of a phased antenna array radiative structure, an approach which not only permits easy computation of the expected characteristics of a designed array, but also determines its potential possibilities and the choice of an elementary radiator. This approach is used in the article to investigate the characteristics of a two-dimensional array with elementary radiators in the form of pyramidal horns. The authors conclude that the method explained by the article is convenient in that it permits determining such characteristics as the gain factor and its variation in beam scanning without getting too involved in details of radiating system processes and without encountering difficult calculations.

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USSR

UDC: 621.396.677.4

TITOV, A. N., SAPSOVICH, B. I.

"A Phased Array as an Antenna System With Artificial Dielectric"

V sb. Antenny (Antennas--collection of works), Byp. 8, Moscow, "Svyaz'", 1970, pp 18-27 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B33)

Translation: A method is described for calculating the gain and fluctuation properties of the radiation pattern of a phased antenna array based on the use of integral characteristics of the radiating system, which is the aggregate of elementary radiators of the array. This method is used to study the characteristics of emission of a two-dimensional array with elementary radiators in the form of pyramidal horns. The equivalent radiation pattern of a horn within the two-dimensional array is found. It is shown that in arrays with a beam rocking angle of up to 35-40° to one side, horn antennas are extremely effective from the standpoint of antenna power characteristics. Six illustrations, bibliography of two titles. Résumé.

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USSR

UDC: 577.4

ZEL'TSER, L. B., SAPUNAR, E. I.

"Solution of Optimization Problems by a Collective of Independent Automata"

Materialy seminarov po kibernet. AN MoldSSR, Mold. territor. grupp. Nats. kom. SSSR po avtomat. upr. (Materials of a Seminar on Cybernetics, Academy of Sciences of the Moldavian SSR, Moldavian Territorial Group of the National Commission of the USSR on Automatic Control), 1973, vyp. 51, pp 3-17 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V423)

Translation: A survey of some papers dealing with the use of a collective of independent automata for solving optimization problems.

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UDC: 51

USSR

ZLOTNIK, S. G., SAPUNAR, E. I.

"Determining the Optimum Makeup of the Working Aggregates of an Electric Power Plant"

Materialy Seminara po kibernet. AN MoldSSR, Mold. territor. gruppna Nats. kom. SSSR po avtomat. upr. (Materials of the Moldavian Territorial Group of the National Commission of the USSR on Automatic Control), 1971, vyp. 35, pp 11-21 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V505)

Translation: An algorithm is proposed for the optimum makeup of the working equipment of an electric power plant. The algorithm is based on a combination of the Lagrange method of multipliers and methods of solving the knapsack problem. The algorithm is much more effectively applicable to this purpose than is the dynamic programming algorithm. Authors' abstract.

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USSR

UDC: 539.375:620.171

MOROZOV, Ye. M. and SAPUNOV, V. T.

"Computation of Destruction Diagrams"

Moscow, Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, No 2, 1973, pp 172-176

Abstract: The destruction diagram, defined here as the functional relationship between the external load and the length of the principal crack in a flat specimen, reflects the ability of the specimen material to resist the formation of cracks and is a characteristic to be considered in choosing the material. This article considers equations describing critical and precritical destruction diagrams obtainable from energy criteria of destruction and integral formulation. These equations take into account the presence of the small plastic region before the end of the crack, and include the intensity coefficient of the stresses as well as one empirical coefficient in the case of cyclical loading. A method for computing such diagrams is discussed, and sample diagrams are reproduced. The authors thank V. M. Markochev and B. A. Drozdovskiy for obtaining the experimental results used in the analysis.

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USSR

UDC: 620.171

Sobolev, N. D., Morozov, Ye. M., Markochev, V. M., Gol'tsev, V. Yu., Sapunov, V. T.,
Bobrinskiy, A. P., Moscow

"Experimental and Theoretical Study of the Rupture of Sheet Materials with Cracks"

Kiev, Problemy Prochnosti, No 7, 1972, pp 45-49.

Abstract: Methods are presented for producing rupture diagrams during tensile testing of flat specimens with an initial crack. The results of testing of specimens of sheet material of various thicknesses of aluminum and titanium alloys, as well as certain steels, are studied.

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1/2 017 UNCLASSIFIED
TITLE--SILICON CONTAINING FERROCENE POLYMERS --U-

PROCESSING DATE--04DEC70

AUTHOR--(04)-VISHNYAKOVA, T.P., GOLUBEVA, I.A., SAPUNTSOVA, N.D.,
POLYAKOVA, I.P.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,444
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVERNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOSILICON COMPOUND, FERROCENE, ORGANIC SILANE, MERCURY
COMPOUND, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/1756

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136996

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136996

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE POLYMERS ARE PREPD. BY
POLYCONDENSING 1,1 PRIME,BIS(HALOMERCURY)FERROCENE WITH DISUBSTITUTED
SILANES AT 20-150DEGREES. FACILITY: MOSKOYSKIY INSTITUT
NEFTEKHIMICHESKOY I GAZOVOY PROMYSHLENNOSTI IM. I. M. GUBKINA.

UNCLASSIFIED

USSR

UDC 669.715'782:[620.186 + 539.531]:669.781'779

GORSHKOV, A. A., SAP'YAN, V. G., SIL'CHENKO, T. V., CHERNOCORENKO, V. B., and GREBENKIN, V. S.

"Influence of Phosphides $Al_{III}B_V$ on the Structure and Certain Properties of Hypereutectic Silumins"

V sb. Modifitsir. siluminov (Modification of Silumins -- Collection of Works), Kiev, 1970, pp 77-82 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1749 by I. NABATOVA)

Translation: By microanalysis and microhardness methods the authors investigated the modifying and alloying action of phosphides of the type $Al_{III}B_V$ (BP, AlP, GaP, ZnP) on hypereutectic Silumins containing (in %): Si 18, Cu 2.08, Mg 0.4, Ni 1.05, Mn 0.12, Zn up to 0.3, and Fe 0.42. Phosphides were introduced at melt temperature of 800° in an amount constituting 0.4% of the weight of the alloy. Modification time, 2-3 minutes; subsequent homogenization time at 800° , 30 minutes. BP and AlP significantly reduce alloy structure; GaP has less effect on structure, and ZnP very slight effect, which is due to the different phosphorus content of the phosphides. BP and AlP occur in silicon in the form of solid solutions and increase the microhardness of primary silicon

1/2

USSR

GORSHKOV, A. A., et al, Modifitsir. siluminov (Modification of Silumins -- Collection of Works), Kiev, 1970, pp 77-82 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1749 by I. NABATOVA)

crystals to H 50/5 1600 and 1460 respectively. GaP and ZnP raise H 50/5 to 1190 and 1170 due to the formation of AlP, which becomes part of the silicon lattice. Total hardness of alloys does not vary after modification. One illustration. Two tables. Bibliography of 23 titles.

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- 14 -

USSR

UDC 669.715'782.018.25

SAP'YAN, V. G., and GORSHKOV, A. A., Institute of Casting Problems, Academy of Sciences Ukrainian SSR

"Prospects for the Use of Modified Hypereutectic Silumins"

V sb. Modifitsir. siluminov (Modification of Silumins -- Collection of Works), Kiev, 1970, pp 53-55 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1751 by I. NABATOVA)

Translation: The authors demonstrate the necessity of treating hypereutectic Silumins with 16-26% silicon content in order to make brake shoes, pistons, bushings, cylinder heads, and other parts of internal combustion engines that operate under a forced regime (high temperature, intensified wear). The advantages of hypereutectic Silumins as compared with Al-Si eutectic alloys are heightened resistance to heat, resistance to wear, heat conductivity, and fluidity. A search must be made for an effective modifier of hypereutectic Silumins, as well as for ways of heightening their resistance to heat and thus of increasing the reliability and durability of castings made from them. Bibliography of five titles.

1/1

Turbine and Engine Design

USSR

UDC 621.438.001.5

SAPYKIN, G. S., Candidate of Technical Sciences

"Concerning the Economically Advisable Cooling Level of High Temperature Gas Turbines"

Leningrad, Energo-Mashinostroyeniye, No 9, Sep 71, pp 33-35

Abstract: A method is outlined for determining the most favorable temperature of cooled high temperature turbine blades, taking into account technological resources of metal and service life of the item. The method is substantiated by numerical calculations for various power gas turbine units and various blade steels. An analysis of the results shows that: 1) In the selection of high temperature gas turbine characteristics, it is necessary to take account of variation in fuel expenses and amortization, with blade temperature; 2) The use of the concept of the degree of technological metal resources exhaustion makes it possible to evaluate approximately the economically most favorable level of blade cooling; 3) The blade cooling level depends on the type and power of gas turbine unit, gas parameters, blade material, capital investment and fuel cost.

1/1

1/2 007 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ION EXCHANGE REFINING OF TANNIN -U-
AUTHOR--(04)-RIZAYEV, N.U., BERIDZE, P.Z., YAVICH, P.A., SARABUNOVICH, A.G.
COUNTRY OF INFO--USSR
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIFFERENT CATION AND ANION
EXCHANGE RESINS WERE EMPLOYED FOR THE REFINING OF TANNIN FROM TWO
SOURCES. IN SOME REFININGS THE PURITY OF TANNIN WAS AS HIGH AS
94.5PERCENT. THE MERITS OF THESE RESINS ARE DISCUSSED FROM AN EXPTL.
VIEW. FACILITY: INST. FARMAKOKHIM. IM. KUTATELADZE, TBILISI,
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